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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/804,814

03/19/2004

Andrew A. Frank

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7074

8156 7590 01/16/2007  
JOHN P. O'BANION  
O'BANION & RITCHEY LLP  
400 CAPITOL MALL SUITE 1550  
SACRAMENTO, CA 95814

EXAMINER

LEWIS, TISHA D

ART UNIT

PAPER NUMBER

3681

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/16/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/804,814

Applicant(s)

ANDREW A FRANK

Examiner

TISHA D. LEWIS

Art Unit

3681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,7-14,16-18 and 20-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-5,9-14,16-18 and 22-26 is/are allowed.
- 6) ☒ Claim(s) 7, 8, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

### **DETAILED ACTION**

The following is a response to the amendment received on October 30, 2006 which has been entered.

#### ***Response to Amendment***

Claims 1, 3-5, 7-14, 16-18 and 20-26 are pending in the application. Claims 2, 6, 15, 19 and 27-32 are cancelled.

-The 103(a) rejection of claims 1, 5, 14 and 18 has been withdrawn due to applicant amending claims 1, 5, 14 and 18 with indicated allowable subject matter of claims 2, 6, 15 and 19.

#### ***Response to Arguments***

Applicant's arguments have been fully considered but they are not persuasive. As to applicant's amendment to claims 7 and 20, Frank discloses the limitations (including amendment as claimed) by providing a controller that commands the CVT and powertrain.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7, 8, 20 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 7 and 20, the phrase "adapted to" raises a question as to the limiting effect of the limitation in this claim (should the limitation following the phrase be given patentable weight, etc.), MPEP 2111.04 [R-3].

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 8, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank in view of WO, Friedmann ('687) and Eggert et al ('216). Frank discloses a hybrid electric vehicle having a continuously variable transmission (18), an internal combustion engine (10) coupled to the CVT, an electric motor (24) coupled to an output of the engine, a system controller (30) controlling the motor and sending commands to the motor and engine depending on transmissible torque and driver input (accelerator or brake pedal, TE or TM), engine and rate of change of ratio of the CVT dynamically varying an acceleration (via 32) and deceleration (via 34) by varying motor torque (42) and rate of change of ratio (44), but does not disclose mapping a rate of change of ratio to clamping pressure, having primary and secondary pumps not fluidly connected and raising the pressure of a secondary pulley when shifting to a low gear.

WO discloses a control system for a continuously variable transmission having a programmable controller (17-19), means associated with the controller for mapping rate

of change of ratio to clamping pressure between the pulleys of the CVT (claims 3-5, Figure 4 (algorithm or map), a hydraulic servo control system (15, 16, 20, 21) controlled by the controller and controlling clamping pressure of the CVT, achieving a desired rate of change in ratio of the CVT (ROC), achieving a commanded clamping pressure ( $P_f$ ,  $P_s$ ) in response to an input torque ( $T_p$ ) and a commanded ratio rate (RC) based on a mapping of empirical data pertaining to pressure (cylinder pressure), ratio rate (pulley ratio) and torque (transmission torque), controlling the ratio rate and clamping pressure based on a ratio map (mapping of ratio rate above), and transmitting a given amount of torque ( $T_t$ ) according to the map (Figure 4).

Friedmann discloses a continuously variable transmission having a first and second pulley (1 and 2) with a first pump (14) connected to the first pulley and a second pump (20) connected to the second pulley. The pumps (14 and 20) are not fluidly connected.

Eggert et al discloses a continuously variable transmission having a pressure pump (66) connected to a secondary pulley (via 28) and a shift pump (38, changing ratio) connected to a primary pulley (via 26) wherein the pumps are fluidly connected and pressure to both pulleys are raised when switching to a low gear (column 3, lines 65-68 to column 4, lines 1-13).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide Frank with a mapping rate of change ratio to clamping pressure in view of WO to prevent slipping of the drive belt.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide Frank with a first and second pump not fluidly connected in view of Friedmann to provide other functions for at least one of the pumps, i.e., to serve as a clutch between the engine and transmission.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide Frank with increase pressure in the secondary pulley in view of Eggert et al to provide adequate supply of fluid to displace the cylinder of the pulley to produce the range of drive ratios.

***Allowable Subject Matter***

Claims 1, 3-5, 9-14, 16-18 and 22-26 are allowed.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TISHA D. LEWIS whose telephone number is 571-272-7093. The examiner can normally be reached on M-F 7:30 AM TO 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHARLES A. MARMOR can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tdl  
January 7, 2007

  
TISHA LEWIS  
PRIMARY EXAMINER  
Ali 3681 1/7/07